California Environmental Protection Agency AIR RESOURCES BOARD	CATERPILLAR, INC.	EXECUTIVE ORDER U-R-001-0216-1 New Off-Road Compression-Ignition Engines

Pursuant to the authority vested in the Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engine and emission control system produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)
2003	3CPXL27.0HRP	27.0	Diesel	8000

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION
Direct Diesel Injection, Turbocharger, Charge Air Cooler and Engine Control Module	Loader, Tractor, Dozer and Industrial Equipment

The engine models and codes are attached.

The following are the exhaust certification standards (STD) or family emission limit(s) (FEL) as applicable, and certification levels (CERT) for hydrocarbon (HC), oxides of nitrogen (NOx), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kw-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

RATED POWER CLASS	EMISSION STANDARD CATEGORY		EXHAUST (g/kw-hr)					OPACITY (%)		
			HC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
KW >560	Tier 1	STD	1.3	9.2	N/A	11.4	0.54	20	15	50
		FEL	N/A	N/A	N/A	N/A	0.29	N/A	N/A	N/A
		CERT	0.1	8.4	--	1.4	0.11	16	3	30

BE IT FURTHER RESOLVED: That the family emission limit(s) (FEL) is an emission level declared by the manufacturer for use in any averaging, banking and trading program and in lieu of an emission standard for certification. It serves as the applicable emission standard for determining compliance of any engine within this engine family under 13 CCR Sections 2423 and 2427.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.

This Executive Order hereby supersedes Executive Order U-R-001-0216 dated November 25, 2002.

Executed at El Monte, California on this 24TH day of June 2003.

Allen Lyons, Chief
Mobile Source Operations Division

ATTACHMENT 1 OF 1

Engine Model Summary Form

Manufacturer: CATERPILLAR INC.
Engine category: Nonroad Over 50 Hp
EPA Engine Family: 3CPXL27.0HRP
Mfr Family Name: NA
Process Code: New Submission

U-R-001-0216-1

1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J1930
Note: Peak HP	and Peak Torque	fuel rates are	nominal values.	Due to product-	ion engine avgs.	these fuel rates	may change.	
1 - Cert Engine	3412	1082 @ 2100	276	389.7	3245 @ 1400	317	298.5	EM, DI, TC, ECM,
2	3412	760 @ 2100	196	276.5	2250 @ 1400	224	211.0	EM, DI, TC, ECM,
3	3412	800 @ 2100	204	288.4	2401 @ 1400	238	224.1	EM, DI, TC, ECM,
4	3412	860 @ 2100	221	312.0	2585 @ 1400	258	242.7	EM, DI, TC, ECM,
5	3412	900 @ 2100	230	325.0	2701 @ 1400	266	250.0	EM, DI, TC, ECM,
6	3412	950 @ 2100	241	340.1	2852 @ 1400	282	265.2	EM, DI, TC, ECM,
7	3412	1000 @ 2100	258	364.7	3003 @ 1400	298	280.8	EM, DI, TC, ECM,
8	3412	1050 @ 2100	272	383.6	3148 @ 1400	315	296.7	EM, DI, TC, ECM,
9	3412	760 @ 2000	208	280.0	2337 @ 1300	222	194.0	EM, DI, TC, ECM,
10	3412	760 @ 2000	208	280.0	2597 @ 1300	250	219.0	EM, DI, TC, ECM,
11	3412	760 @ 1800	224	271.2	2508 @ 1200	243	196.4	EM, DI, TC, ECM,
12	3412	860 @ 2100	214	304.8	2603 @ 1400	254	240.0	EM, DI, TC, ECM,
13	3412	1000 @ 2100	251	354.9	3020 @ 1400	303	285.0	EM, DI, TC, ECM,
14	3412	820 @ 2100	211	297.8	2585 @ 1400	256	240.7	EM, DI, TC, ECM,
15	3412	800 @ 2100	212	300.0	2695 @ 1400	267	251.3	EM, DI, TC, ECM,
16	3412	758 @ 1800	269	325.4	2612 @ 1200	310	250.0	EM, DI, TC, ECM,

cAC